Stand

The invention relates to a stand with a column, which has been placed on a base section and has at least one profiled element, at whose upper end section a heat unit is fastened, which has a pivot element, which can be tilted around a horizontal pivot shaft, can be clamped in place in a desired tilt position, and has a receiver element on its top.

Such a stand in the form of a support for holding objects is disclosed in EP 0 555 685 A1. In connection with this known stand a head unit, which can be tilted around a pivot shaft, is attached to the upper portion of a slim column, wherein a relatively elaborate fastening section overlaps the upper end section of the column.

It is the object of the invention to make available a stand of the type mentioned at the outset, wherein the head unit is solidly mounted on the column by means of a simple structure.

This object is attained by means of the characteristics of claim 1. It is provided here that the head unit has a pin, which projects into a longitudinally extending hollow space of the profiled element and which is attached, fixed in place in respect to the upper end section of the profiled element, in which the pivot element is seated.

With this structure the column can be designed to be solid, and the attachment of the head unit is solidly and simply designed. By means of this it is also possible to attach larger device housings to the receiver element, for example.

The steps, wherein the pin is provided with a vertical gap open toward the top, into which the pivot element, which is embodied as a plane-parallel plate, has been inserted,

contribute to a simple structure with assured functioning and simple handling, wherein the thickness of the pivot element is matched to the clearance of the gap, and the pivot shaft projects through the pin with the pivot element in the area of the gap in the direction of the normal perpendicular line, and the pivot element projects past the upper front face of the pin.

Handling and an assured function are here furthered in that a clamping bore, which terminates in the gap in the area of the inserted pivot element, has been cut parallel in respect to the pivot shaft into the gap area of the pin, and that a clamping bolt of a manually adjustable clamping lever with a screw thread is guided transversely through the profiled element which has been screwed into a screw thread which has been cut into the profiled element, or a separate screw piece, and can be clamped in place with its front face against the pivot element for fixing a desired inclination of the receiver element.

Further steps for simple, solid mounting are advantageous in that a flange-like or ring-shaped fastening element has been fixed to the upper front face or the lateral end area of the pin, which projects laterally past the pin in the manner of a collar, and by means of which the pin can be fastened on the upper front face of the profiled element.

An advantageous construction here consists in that the fastening element has been welded or screwed to the profiled element, wherein screw channels, which extend longitudinally inside the hollow space of the profiled element, have been provided for screwing.

Mounting, along with a solid construction are also furthered in that the threaded piece has been inserted into a longitudinally extending receiving groove cut into the hollow chamber of the profiled element.

If it has been provided that the column consists of an outer profiled section which is attached to the base section, and an inner profiled section, which is seated in a telescopically displaceable manner in it and can be fixed in place in several positions, and that the profiled element is constituted by the inner profiled section, it is easy to employ different inner profiled sections with different head sections attached to them for different uses. Further simple mounting options result from this.

A further advantageous embodiment here results in that sections of the inner contours of the outer profiled section are matched in cross section to the outer contours of inner profiled sections which have different cross-sectional shapes, in such a way, that the different inner profiled sections having respectively three outer contour sections which are spaced apart in the circumferential direction, are supported, non-tiltable in the transverse direction, flat over the length, on at least three inner contour sections which are offset in respect to each other.

The invention will be explained in greater detail in what follows by means of exemplary embodiments, making reference to the drawings. Shown are in:

Fig. 1, a stand with a height-adjustable column in a perspective view,

Figs. 2a) to 2c), cross-sectional views of the column in accordance with Fig. 1 with identical outer profiled sections and different inner profiled sections,

Fig. 3, a clamping area of the column, wherein the clamping elements have been disassembled, in a perspective view,

Fig. 4, the clamping area of the column in cross section,

Fig. 5, a perspective representation of the column with a gas spring in a partially disassembled state,

Fig. 6, the area of a head unit in the removed state in a perspective representation, and

Fig. 7, another perspective representation of the head unit in accordance with Fig. 6.

A height-adjustable stand represented in Fig. 1 has a flat, one-piece base plate 1 with a vertical support 2 attached centrally to it, on which an outer profiled section 3, whose inner cross-section has been matched to the support 2, is fastened. The outer profiled section 3 is a component of a height-adjustable column 30, which has an inner profiled section 4 as a further component, which has been inserted into the outer profiled section 3 and can be height-adjusted therein in a telescope-like manner. The inner profiled section 4 has a head element 7, which is attached to its upper end area and has a plate-shaped receiver element 9, which can be tilted around a horizontal axis. The inner profiled section 4 can be continuously height-adjusted inside the outer profiled section 3 and can be fixed in place at a desired height by means of a clamping mechanism having a manually actuable clamping lever 5 and a clamping element which can be displaced by the latter transversely in relation to the longitudinal axis. For fixing the receiver element 9 in place in a desired tilted position, a further clamping lever 8 is provided. The plate-shaped receiver element 9 has fastening bores 9.1, as well as further fastening bores for attaching a device housing or a deposit plate.

As can be seen in Figs. 2a), b) and c), the outer profiled section 3 has inner contour sections 3.1, 3.2 of different cross sections, which are matched in sections to different

outer contour sections 4.1, 4.2 of different inner profiled section 4 and support the inner profiled section 4 laterally on at least three sides in such a way, that the inner profiled section 4 is guided, non-tiltable and steady, in the longitudinal direction, in the course of which, viewed in a longitudinal direction, plane-like guide sections result from the inner contour sections 3.1, 3.2 and the complementary outer contour sections 4.1, 4.2, because the cross section of the outer profiled section remains the same over its length.

In the exemplary embodiment in accordance with Fig. 2a), the inner contour of the outer profiled section 3 has rounded inner contour sections 3.1, as well as angular inner contour sections 3.2, wherein the rounded inner contour sections 3.1 are located, spaced apart from each other, on a circular path and enclose, on several sides, an inner profiled section 4, substantially circular in cross section, having rounded outer contour sections 4.1, which are connected with each other and are located on a corresponding circular path, so that an all-around tilt-preventing support of the inner profiled section 4 inside the outer profiled section 3 results. For example, four larger and four smaller inner contour sections 3.1 exist, which are distributed around the inner profiled section 4 over more than 180° for assuring the tilt-preventing support. The inner profiled section 4 is flattened only on two oppositely located long sides and has in its interior longitudinally extending screw channels 4.3 for mounting a mounting element of the head element 7 on the front face. In this exemplary embodiment, the inner profiled section 4 can be rotated around the vertical, or linearly extending axis in the outer profiled section 3. If rotation around the vertical axis is to be avoided, it is possible in accordance with Fig. 4, for a transverse pin 4.4 to be conducted through the inner profiled section 4, which protrudes on both sides past the outside of the inner profiled section 4 and

projects into holding grooves 3.4 on both sides, which have been formed in the inner contour of the outer profiled section 3.

As Fig. 2b) shows it is also possible to use a simple profiled tube with circular cross section as the inner profiled section 4, whose outer contour sections 4.1 are supported, safe against tilting and slidingly, in a corresponding manner by the rounded inner contour sections 3.1, the same as the inner profiled section 4 in accordance with Fig. 2a). Here, too, as in connection with Fig. 4, a rotation prevention can be provided by means of a transverse pin 4.4 as in the exemplary embodiment in accordance with Fig. 2a).

In the exemplary embodiment in accordance with Fig. 2c), a substantially square inner profiled section 4 has been inserted into an outer profiled section 3, wherein four angular inner contour sections 3.2, formed in the inner contour of the outer profiled section 3, are used for the tilt-preventing, slidingly guided seating of the inner profiled section 4, including the corner areas of the inner profiled section 4. It is similarly possible to form different angular inner contour sections in the outer profiled section 3 in order to receive an inner profiled section 4 in a guided manner which, for example, has a rectangular, triangular or otherwise polygonal cross section.

The rounded inner contour sections do not have to be embodied to be in the shape of a section of a circle and to lie on a circular path, instead they can be matched to an inner profiled section which is oval in cross section, for example.

As Figs. 3 and 4, also in connection with Figs. 2a) to 2c), show, a preferably T-shaped clamping groove 3.3 with an opening located toward the interior, into which the clamping element 6 of the clamping mechanism has been inserted for fixing the inner profiled

section 4 at a desired height position, is formed in the inner contour of the outer profiled section 3. The clamping element 6 rests with a clamping plate section 6.1 in the clamping groove 3.3 and is maintained, secure against sliding in the clamping groove 3.3, on the upper front face of the outer profiled section 3 by means of an outwardly extending holding protrusion 6.2. In the area of the clamping plate section 6.1, namely in a holding bore 6.3 of the clamping element 6 cut there, a transversely extending threaded bore 3.5 has been cut into the outer profiled section 3, into which a threaded pin 5.1 of the clamping lever 5 has been screwed and projects with an end section of reduced diameter into the holding bore 6.3, and rests with a flange-like shoulder of the threaded pin 5.1 on the exterior of the clamping plate section 6.1 so that, when the threaded pin 5.1 is screwed in, the clamping element 6 is displaced inward and clamps the inner profiled section 4 in place in the outer profiled section 3.

With the construction represented in Fig. 5, the inner profiled section 4 is supported by means of a gas spring 10 on the base section, so that lifting the inner profiled section 4 with the receiver element 9 and an object or device located thereon is easily possible. The gas spring 10 is fixed in place in the hollow inner profiled section 4 by means of at least one fastening bolt 11, and on the other side by means of at least one further fastening bolt 12 in the hollow support 2, which results in a simple assembly. The outer profiled section 3, which is supported with its lower end on the base plate 1, can be fixed in place on the support 2 in a simple way by means of fastening bolts or screws.

Fig. 6 shows the upper portion of the inner profiled section 4 with the head element, or the head unit 7, which can be inserted therein, in more detail, wherein the head unit

7 has been removed. The head unit 7 has an adjusting unit 20 for adjusting the inclination of the receiver unit 9 which, for example, is plate-shaped. The adjusting unit 20 has a vertical pin 21 arranged underneath the receiver unit 9, which is inserted, as free of play as possible, into the inner hollow chamber of the inner profiled section 4, wherein inwardly protruding holding ribs, which are supported on the exterior circumference of the pin 21, are arranged in the inner hollow chamber of the inner profiled section 4. The already mentioned screw channels 4.3, which terminate in the upper end, have also inter alia been cut into the hollow chamber of the interior profiled section 4. Furthermore, at least one receiving groove 4.5 extending in the linear direction for inserting a threaded piece 8.2 in the form of a cage nut has been formed in hollow chamber of the interior profiled section 4.

As can be seen in particular in Fig. 7, the pin 21 which is cylinder-shaped, for example, has a gap 26, open to the top, in its diameter area, into which a pivot element 23, embodied as a plane-parallel plate, has been inserted, pivotable around a horizontal pivot shaft 24. The thickness of the pivot element 23 has been matched to the clearance of the gap 26, bordered by also plane-parallel lateral faces, in such a way that the pivot element 23 can be pivoted easily and free of play. The pivot shaft 24 has been passed through the pin 21 and the pivot element 23 in the direction of the normal perpendicular line in respect to the plate-shaped pivot element 23. The pivot element 23 protrudes upward past the pin 21 and supports on its top the receiver element 9 fastened on it, so that the latter can be tilted along with the pivot element 23.

Furthermore, a clamping bore 25 has been cut, parallel with the pivot shaft 24, in the pin 21 in the area of the plate-shaped pivot element 23, into which projects a clamping

bolt 8.1 of the clamping lever 8, wherein the clamping bolt 8.1, which is provided with a screw thread, can be displaced in the threaded piece 8.2 inserted into the receiving groove 4.5 so far that by means of its front face it can be clamped in place on the pivot element 23 for being fixed in a desired tilt position. From this results a simple, secure clamping mechanism for fixing the pivot element 23, and therefore also the receiver element 9, in place in the desired inclined position.

The head element, or the head unit 7, is fastened by means of a fastening piece 22 on the front of the inner profiled section 4, for example by means of screws or by welding. To this end the fastening piece 22 is embodied to be plate-shaped or ring-shaped and has been attached in the upper end area, or on the front of the pin 21, and projects past the latter on the circumferential side. For being screwed in, the fastening piece 22 has holes which correspond to the screw channels 4.3, so that it can be rigidly connected with the inner profiled section 4 by means of screws which can be inserted into the screw channels 4.3. Further fastening screws 13 are provided for attaching a deposit plate or device housing to the receiver element 9 in the fastening bores 9.1, or further fastening bores.